



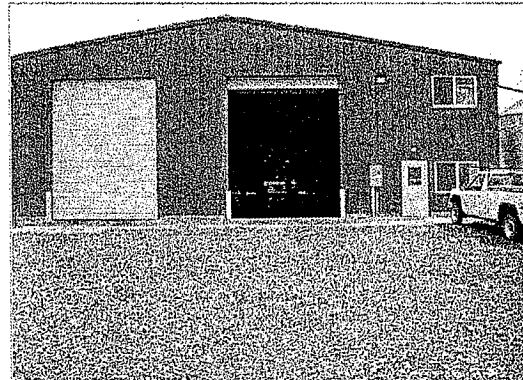
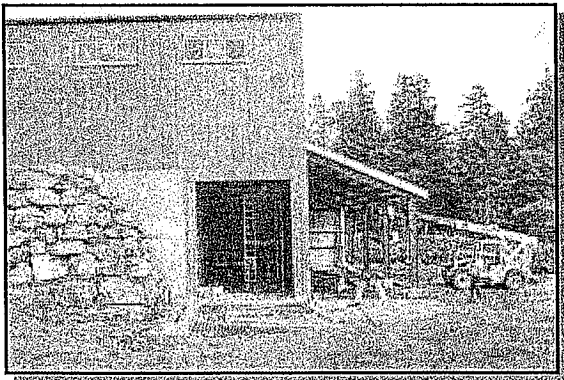
Alaska Department of Environmental Conservation



Klawock Assessment

Transfer Facility Demonstration Project

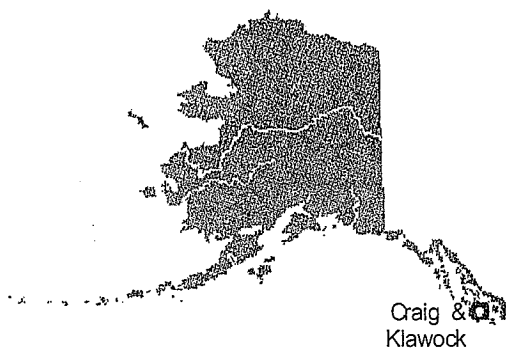
*A cooperative project between the Denali Commission, the
Alaska Department of Environmental Conservation
and the City of Klawock*



Klawock Transfer Facility during final construction in 2000, left, and completed view, right.

Report Prepared by:
Alaska Department of Environmental Conservation
Municipal Grants and Loans

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Craig and Klawock are located on Prince of Wales Island, about 55 air miles west of Ketchikan.



This photo was taken before construction of the transfer facility. Bears were a constant nuisance.

Report Overview

Craig and Klawock, the two largest communities on Prince of Wales Island, have shared landfill space and duties for many years. The landfill is located within the city boundaries of Craig but is operated by the city of Klawock.

In April 2001, the Denali Commission awarded a sizeable grant to the City of Klawock for a solid-waste demonstration project. This was intended to correct health and environmental problems from an unpermitted, inadequate landfill and create a collection hub for several rural, island communities. With additional state grants for planning and design, the community was able to build a transfer facility for municipal solid waste (MSW) and close its landfill to raw garbage. The project is completed and operational, and most MSW is now shipped off-island.

There has been a marked improvement in compliance for solid waste regulations since construction of this facility – accomplished through a local-state-federal partnership. As regulations become stricter for unpermitted landfills in this area, this transfer facility is favorably located to serve a network of communities on Prince of Wales Island, which encompasses 2,600 square miles.

This report will:

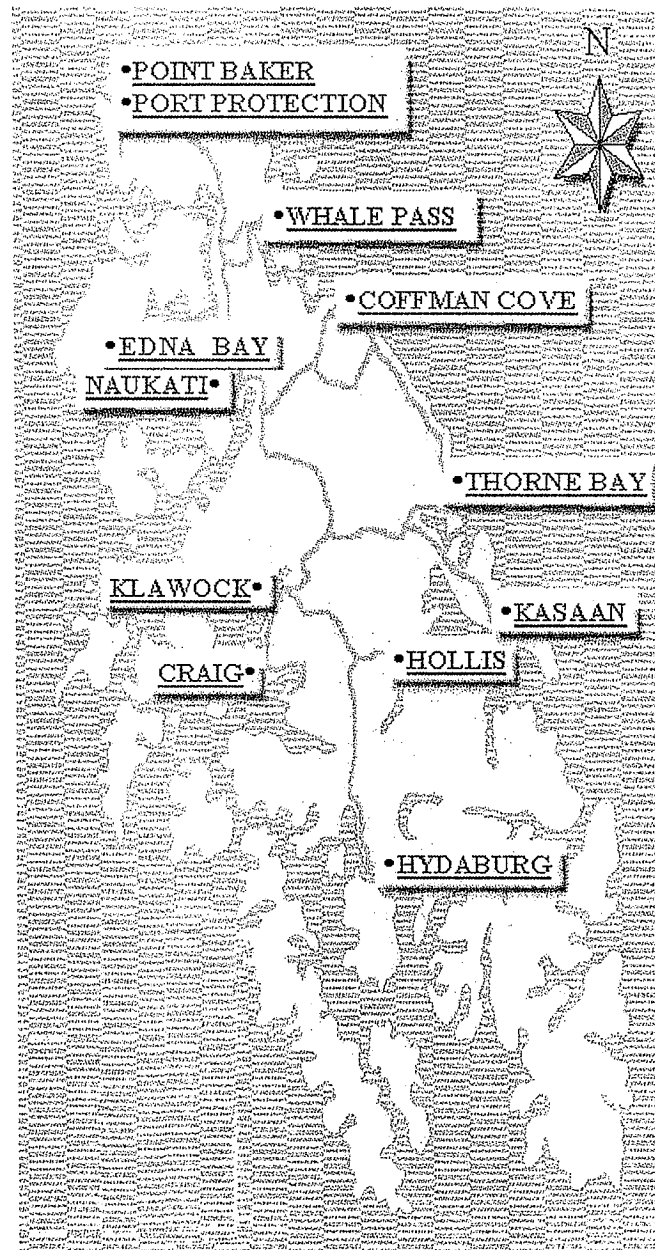
- Summarize funding and construction milestones
- Review the compliance record for this facility
- Assess the effectiveness of the pilot project to serve a larger area

Location

Prince of Wales Island has about 4,000 residents and all communities and villages, but two, are connected by roads. These roads allow for economical transport of wastes. The island is heavily forested and mountainous, with many places on the island receiving over 100 inches of rainfall per year.

Prince of Wales Island

Craig	1227
Klawock	851
Thorne Bay	503
Hydaburg	370
Hollis	178
Coffman	
Cove	163
Naukati	109
Whale Pass	67
Port	
Protection	57
Kasaan	55
Edna Bay	45
Pt. Baker	33



Non-compliance to Construction

An ADEC inspection of the Klawock landfill in 1998 showed 17 solid-waste law violations. The most significant problems were bear attraction, improper sewage sludge disposal, water run-on, and operation without a permit. Other problems included polluted soils, improper placement of medical wastes, not controlling impacts outside the area, poor record keeping, inadequate cover material over garbage, open burning, and a lack of surface water monitoring.

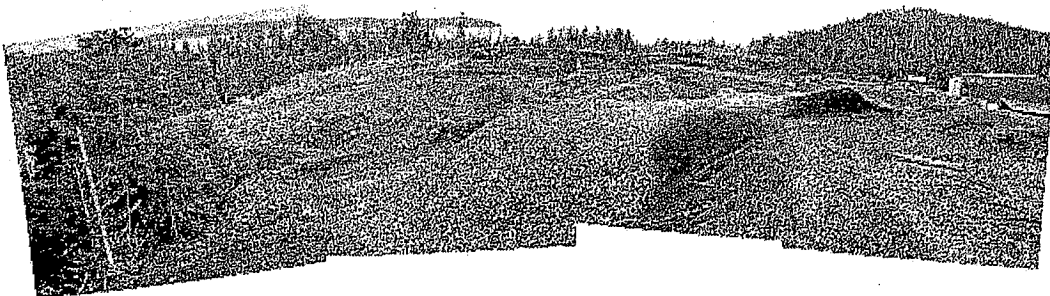
ADEC offered the department's cooperation to work on the public health issues, as well as the procedural issues needed to properly maintain and operate a landfill. The city made improvements to its operation but lacked a long-term permanent solution.

A solid waste management study in 1998 noted options for the Klawock landfill:

- An improved and upgraded landfill for all garbage
- Upgrade the landfill to a bale landfill
- Bale and ship municipal solid waste, with local landfill for certain wastes
- Incineration of waste with landfill for ash and demolition debris
- Transshipment of all solid waste off-island
- Top load containers and ship waste off island, with local landfill for certain wastes
- Off island regional thermal oxidation

When Klawock began working with ADEC to bring the landfill into compliance, the main options investigated were incineration with an improved landfill, upgrading the existing landfill or transshipment to a landfill in the Lower-48.

The city sought grants to help pay to fix the problems. The Alaska Department of Environmental Conservation gave matching grants to Klawock in FY 1999 and FY 2000, totaling about \$210,000, to assist with solid waste studies and design of the solid waste transfer facility. In 2001, the Denali Commission committed \$728,000 to the city to build a transfer facility – essentially a collection point where wastes would be collected for later shipment to a regulated landfill. Other communities in Southeast Alaska (Haines, Sitka, Petersburg, Wrangell and Ketchikan) also ship municipal solid waste out-of-state.



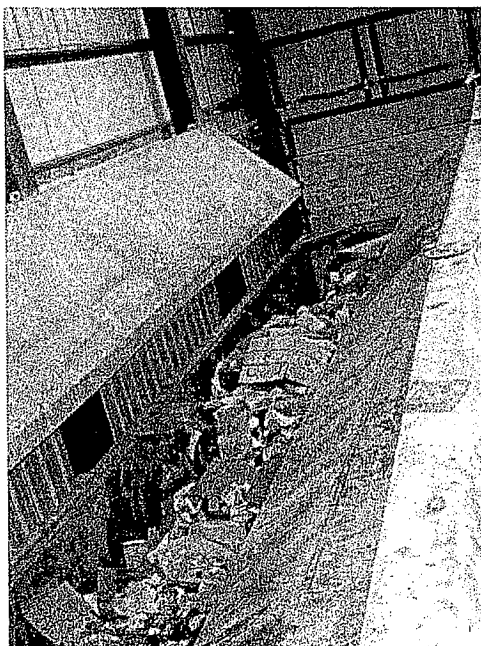
Klawock landfill in current condition. Composite photo shows stock pile of wood waste used for cover material.

Operations

Completed in September 2002 and operational in April 2003, the Klawock transfer facility serves as a transfer point for solid waste, primarily from Craig and Klawock. The facility is open 5 days a week, in winters, for approximately 25 hours. It is open 35-40 hours per week during summer months. Presently, the facility is shipping about 125 tons



Above, Klawock landfill before construction of the transfer facility. Below left, is the chute where trash is tipped in the new facility as it moves into containers.



of MSW a month in five container vans that ride on barge to a regulated landfill in Oregon. The landfill accepts sewage sludge and construction debris, while municipal solid waste goes to the transfer building for sorting.

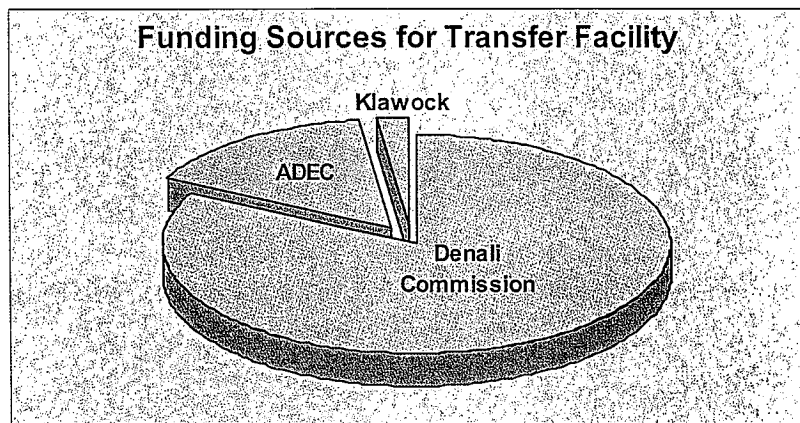
On the facility's sorting floor, wastes are separated to remove household hazardous wastes, metals and other recyclables, wood and brush. The remaining garbage is pushed toward a chute (left) that sits above open container vans that, when full, are placed on barges.

The new method of handling solid waste alleviates many of the problems, including bear attraction. The bears did return to the landfill in Spring 2003 but were prevented from entering buildings. Workers reinforced some of the walls, and the bears left the area after a few days.

TIMELINE – Transfer Facility

Grant – ADEC – Landfill Design (Grant #49509)	\$ 75,000	1998
Grant – ADEC – Solid Waste Improvements (#49510)	\$135,000	July 2000
Grant – Denali Commission –Solid Waste Project	\$728,000	Apr. 2001
Project put out to bid		June 2001
All bids rejected as too costly		Aug. 2001
Construction begins with city managing project		Jan. 2002
Construction ends / Dedication		Sep. 2002
First off-island shipment of waste from Klawock		Apr. 2003

Funding Sources for Transfer Facility

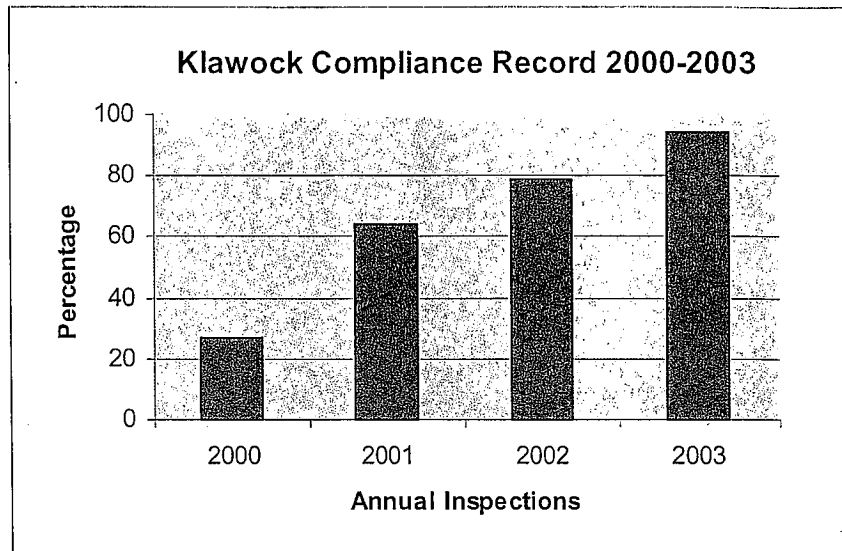


Funding Sources – Transfer Facility

Denali Commission	\$ 728,900	82.7%
ADEC	\$ 135,000	15.3%
Klawock	\$ 18,000	2.0%
	<u>\$ 881,900</u>	

Facility Review by ADEC

One of the most visible performance criteria to evaluate this project is its improved compliance record. During an inspection in 2003, ADEC engineers calculated compliance at 94%, the highest level in many years. Three years earlier it was 24%.

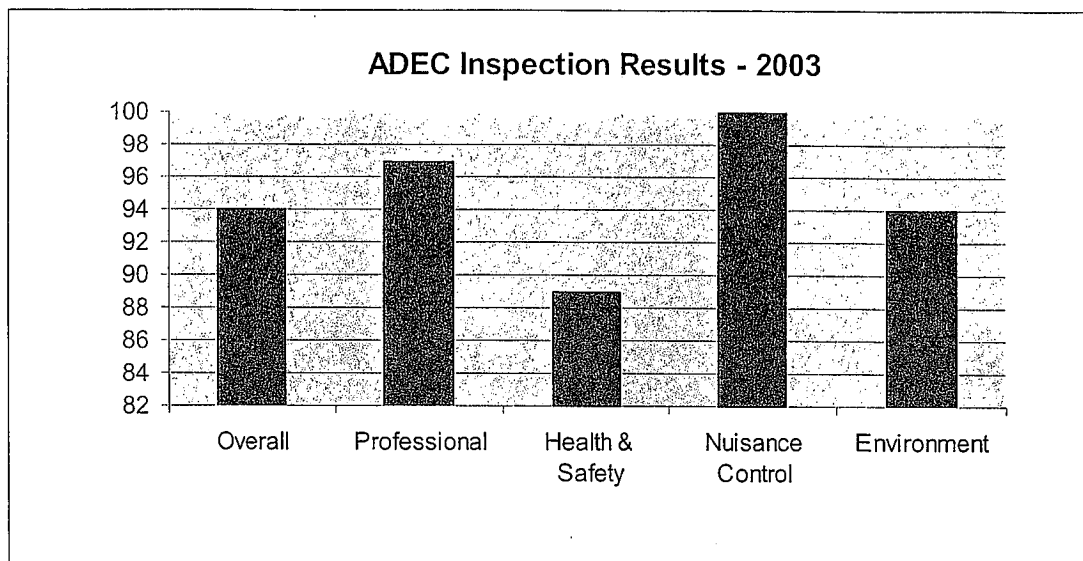


The 2003 ADEC report stated:

"We are pleased with the management and overall improvements being made to upgrade your disposal facility in accordance with your Solid Waste Management Plan and DEC permit...The lack of bears at the landfill was apparent. Resolution of this one issue marks the greatest improvement to this facility since it began operation in 1980. You, your operational staff and your community deserve the greatest amount of credit for solving this problem." Ed Emswiler, ADEC, 2003

Other findings in the 2003 report included:

- The facility is fenced and gated and is restricted during off hours. No salvaging is allowed.
- The operator is knowledgeable of recyclables and banned items.
- Solid waste is screened during curbside pickup and again at the tipping floor prior to being loaded into vans. A separate facility is used to store household hazardous wastes.
- Sewage sludge is immediately covered after disposal.
- A large stockpile of woodwaste is on site for cover material.
- Fluids are drained from vehicles and stored in a separate building. Freon is drained by a certified tech.
- Public health threats are a low risk for this facility.
- No surface water was evident. No leachate seeps were detected.



Overall:	Score represents overall rating of the management of the landfill
Professionalism:	Effectiveness of the record keeping, documentation and training
Health & Safety Concerns:	Disease control rating, work site, safety, and animal control
Nuisance Control:	Dust, litter, odor, noise, and animal control effectiveness
Environmental Protection:	Prevention of leachate formation, health of surrounding vegetation, and control of air and water pollution

Effectiveness of Demonstration Project

From the standpoint of compliance, this project is a huge success. The problems from nuisance bears are gone and potential public health risks are minimal. The project is sustainable, as user fees are collected by the communities and tipping fees are paid at the transfer site for materials that are dropped off.

The Klawock city administration and elected officials are pleased with this project, as is the Alaska Department of Environmental Conservation. The project has met operational expectations, and additional MSW from other island communities can be adequately handled at this facility. Space for sorting and storing of recyclable materials, however, is limited at the transfer facility, so most recyclables are being shipped with municipal waste. The volume of recyclables also is low. The city is willing to work with interested parties that wish to construct recycling space at the landfill and to operate a recycling program.

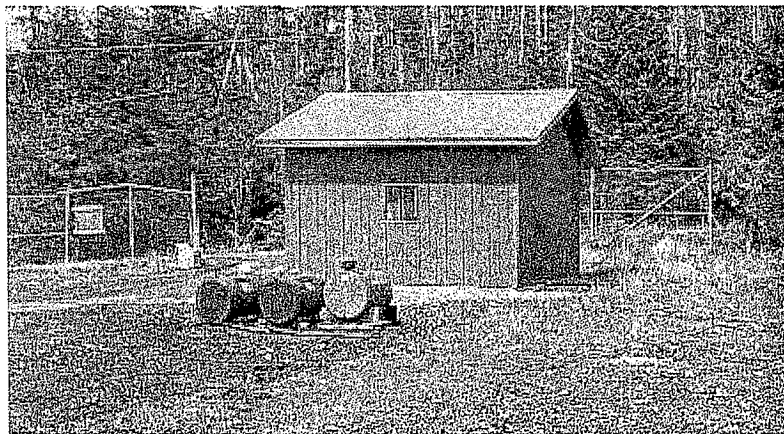
Craig and Klawock produce approximately 125 tons of MSW per month. The current residential rate for solid waste service in Klawock is \$26.31, as set by local ordinance. About half of this fee covers collection costs and half covers disposal expenses. Klawock also receives money from Craig for use of transfer service. When the two-year contract

with Craig expires, the current charge per pound of 7 cents for MSW is likely to be higher. In 2003, it was estimated that Craig annually spends about \$150,000 on solid waste and Klawock spends about \$300,000.

The City of Klawock is capable of handling more solid waste at its transfer facility. On Prince of Wales Island there are only two permitted landfills (Klawock and Thorne Bay) which serve half the population of the island. Many of the other communities have dumps or fill areas. Presently, only Klawock and Craig are utilizing the Klawock transfer facility. The towns of Kasaan, Whale Pass, Naukati and Coffman Cove use the Thorne Bay landfill, which has an anticipated life expectancy of 20 years. However, household hazardous wastes from these communities are stored at Thorne Bay and trucked to Klawock for off-island shipment.

As regulatory, health or water quality concerns become more important to residents, or as solid waste alternatives become less expensive, other communities can move their municipal solid waste to Klawock for shipment to an off-island regulated landfill. This could be facilitated by placing bear-proof dumpsters in communities which can be emptied on a weekly or semi-weekly basis for transport to the Klawock transfer facility. Several settlements are close enough that they can easily benefit from the new transfer site in Klawock.

The Klawock demonstration project proves that local initiative with combined federal and state dollars can lead to mutual gains and benefits.



Household Hazardous Waste building at Klawock, with tanks in foreground for used oil.